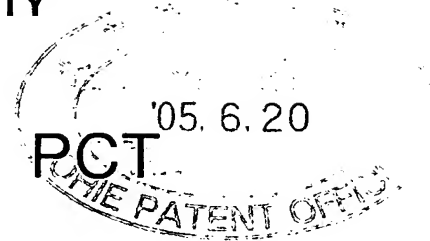


# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY



To:

see form PCT/ISA/220

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/JP2005/006406

International filing date (day/month/year)  
25.03.2005

Priority date (day/month/year)  
31.03.2004

International Patent Classification (IPC) or both national classification and IPC  
C08B37/00, C08G18/64, A61K7/48

Applicant  
SHOWA DENKO K.K.

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

**10/594925**  
**IAP2 Rec'd PCT/PTO 29 SEP 2006**  
International application No.  
PCT/JP2005/006406

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/JP2005/006406

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	10-13
	No: Claims	1-9
Inventive step (IS)	Yes: Claims	10-13
	No: Claims	1-9
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

Reference is made to the following documents:

D1: US 4060506 A

D2: US 5138006 A

D3: PATENT ABSTRACTS OF JAPAN vol. 1999, no. 12, 29 October 1999 (1999-10-29) & JP 11 180818 A (JO COSMETICS KK), 6 July 1999 (1999-07-06)

1. Document D1 discloses starch-acrylamide polymers (col. 10, lines 48-57, examples, claims). Starch is notoriously a multi-branched polysaccharide and a moisture retention compound. The expression "multi-branched" is not very well defined and not of common use in the field. It is here understood to mean that there are more than one branching points on the polysaccharide. Therefore, starch falls under the definition of multi-branched polysaccharide and the subject-matter of claims 1, 4, 8 does not appear to be new over D1 (Art. 33(2) PCT). Starch is a polymer comprising units that can also be derived from anhydrosaccharides: in the final product, there would be no memory of the monomer used (especially in the case  $R=H$  in claim 6). Thus it appears that claims 5-7 are also not new over D1. The subject-matter of claim 9, water solubility, is just an intrinsic feature of the polymers of claim 1. Hence, the polymers of D1 being structurally identical to those of the present application, must have a water solubility falling under the scope of claim 9. Thus claim 9 is also not new over D1.
2. D2 discloses starch-urethane polymers, obtained by reacting starch with an isocyanate where starch units represents the backbone of the polymer and the urethane moieties the pendent chains (claims, examples). The subject-matter of claims 1-3, 8 does not appear to be new over D2 (Art. 33(2) PCT). The same reasoning above applies to claims 5-7, 9. Thus, claims 1-3, 5-9 are not new over D2.
3. Neither D1 nor D2 disclose the subject-matter of claims 10-13, which appear therefore to fulfil the requirements of Art. 33(2) PCT.

4. The closest prior art for the assessment of inventive step in the subject-matter of claims 5-7, 9-13 is D3. D3 shares the same technical problem of the present application, that is, to provide stable moisture retention compounds to be used as skin preparations. The solution offered in D3 is to use branched polysaccharides having D-glucose in the repeat unit (paragraphs [003]-[005] of the computer-generated translation of D3). Thus, the present application differs from D3 in that the branched polysaccharide contain also units derived from non-branched synthetic polymers. D3 alone does not suggest or hint to make these polymers in order to solve the technical problem of preparing skin preparations. D1 and D2 teach to make polymers with branched polysaccharide and non-branched units. However, D1 and D2 solve problems which are totally different from that of the present application. There is therefore no hint in D1 and D2 that would lead the skilled person to prepare moisture-retaining skin preparations according to claims 10-13, or to combine the teachings therein disclosed with D3. Therefore, the subject-matter of claims 10-13 appears to be involving an inventive step in the sense of Art. 33(3) PCT.